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10/082,135	02/26/2002	Hideaki Tsushima	62807-043	5388

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MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

SONG, SARAH U

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

10/082,135

Applicant(s)

TSUSHIMA ET AL.

Examiner

Sarah Song

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) 10, 11, 13 and 14 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1, 3, 5, 7, 9 and 12 is/are rejected.
7) ☒ Claim(s) 2, 4, 6, 8, 15 and 16 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0202, 0502.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 10, 11, 13 and 14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 25, 2003.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The prior art documents submitted by the applicant in the Information Disclosure Statement filed on February 26, 2002 and May 21, 2002 have all been considered to the extent possible and made of record (note the attached copy of form PTO-1449).

Drawings

4. This application has been filed with five (5) sheets of drawings, which have been approved by the Examiner.

Claim Objections

5. Claim 9 is objected to because of the following informalities: in lines 6 and 9, examiner suggests changing "route" to -routes—. Appropriate correction is required.

6. Claims 1-8, 12, 15 and 16 are objected to because of the following informalities: In the claims, applicant claims "optical switches" (see for example line 15 of claim 1). Applicant then further recites "said optical switch" (see for example line 20 of claim 1). It is unclear as to whether applicant intends to claim the embodiment comprising a single optical switch (as in

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Figure 2) or the embodiment comprising plural optical switches (as in Figure 3). It is also noted that in claims 5 and 6, Applicant further claims "said optical switch is composed of a plurality of optical switches" (lines 2 and 3). For purposes of examination, the claims will be interpreted as presented where the recitation for "said optical switch" following the recitation of "optical switches" will be interpreted to read on an optical switch of the plural optical switches. Claims 3-8 are objected to as inheriting the same ambiguity from the independent claims from which they depend.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (U.S. Patent Application Publication 2002/0021857).** Regarding claim 9, Eng discloses a method of using an optical switching equipment 104 for switching a route of an optical signal received from any one of a plurality of first 121 and 120 and second optical transmission routes and outputting the optical signal to any one of said plurality of first or second optical transmission routes, comprising the steps of:

- splitting the optical signal received from any one of said second optical transmission routes into a plurality (e.g. n) of optical signals (i.e. Figure 2 illustrates input of n-channel DWDM 210 being split into n optical signals);

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- as to the output signals to be outputted from any one of said plurality of first optical transmission routes 121, receiving a plurality of optical signals from said plurality of first different optical transmission routes 121.

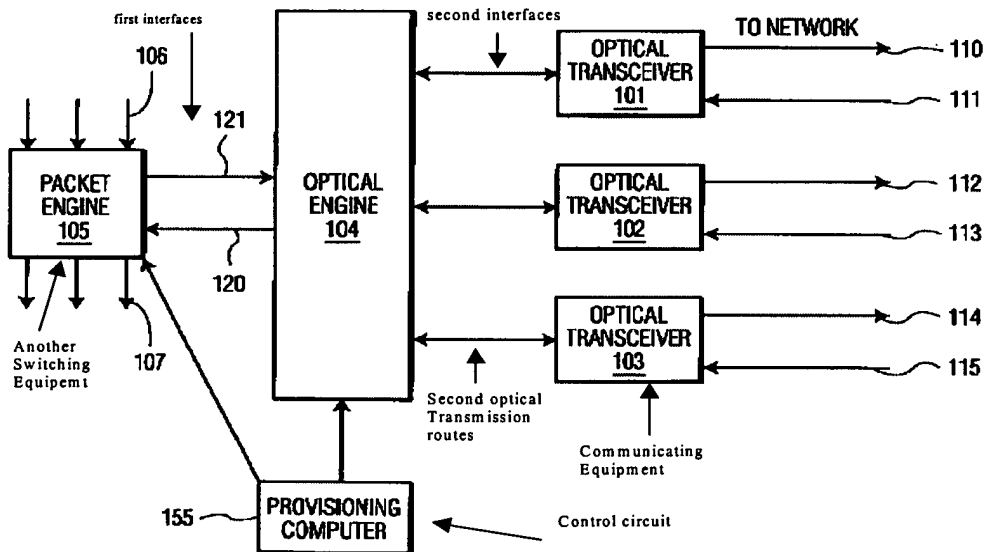
9. Eng et al. does not specifically disclose the step of outputting the plurality of signals (split signals) to the different first optical transmission routes, or the step of outputting said selected optical signal (outputted from any one of said plurality of first optical transmission routes) to said second optical transmission route.

10. However, Eng et al. discloses that inputs received from either the optical network (second optical transmission routes) or the packet engine (first optical transmission routes) may be outputted to either the optical network (second optical transmission routes) or to the packet engine (first optical transmission routes). In other words, any of the inputs from the first or second optical transmission routes may be outputted to any of the first or second optical transmission routes. See also Figure 4, and in particular routes 403 and 407(a). Eng et al. further states that the step of outputting the optical signal to the first or to the second transmission routes is dictated by the need for packet switching (see Paragraphs [0029] through [0035]).

11. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to output the plurality of optical signals (split signals) to the different first optical transmission routes 120, in order to maximize capacity by sending the plurality of optical signals to the packet engine. It would also have been obvious to one having ordinary skill in the art at the time the invention was made to output the selected optical signal (outputted from any one of said plurality of first optical transmission routes) to said second optical transmission route in order to provide increased communication capacity with additional nodes in the network.

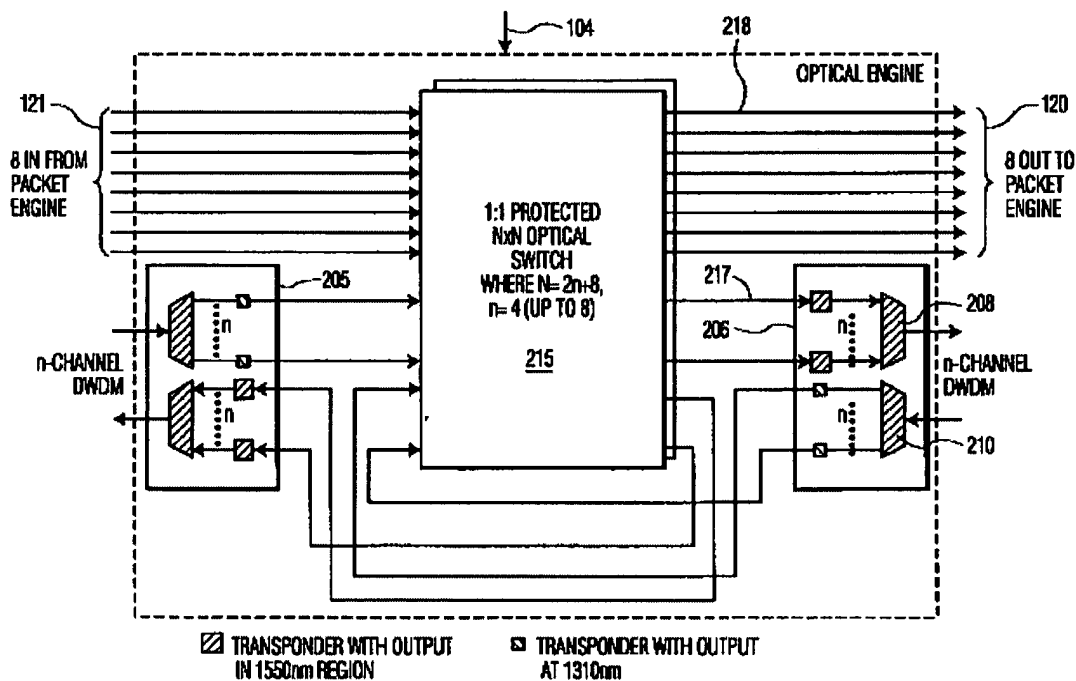
12. **Claims 1, 3, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al.** Regarding claim 1, Eng et al. discloses an optical switching equipment for switching a route of an optical signal received from any one of a plurality of optical transmission routes comprising:

- first interfaces for transmitting or receiving the optical signals to or from another switching equipment through a plurality of first optical transmission routes 120 and 121;
- second interfaces for transmitting or receiving the optical signals to or from a communicating equipment connected to said optical switching equipment through a plurality of second optical transmission routes;
- optical switch 215 (see Figure 2) for providing a route of said optical signal between said plurality of first interfaces and said plurality of second interfaces;
- and a control circuit 155 for setting a route of said optical signal inside said optical switch.



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13. The optical signal received from said second optical transmission route is split into a plurality of optical signals, and said plurality of optical signals is outputted (from 205 or 206) to said plurality of first different optical transmission routes through a plurality of routes set in said optical switch. See also Figure 4, and in particular route 407(a).



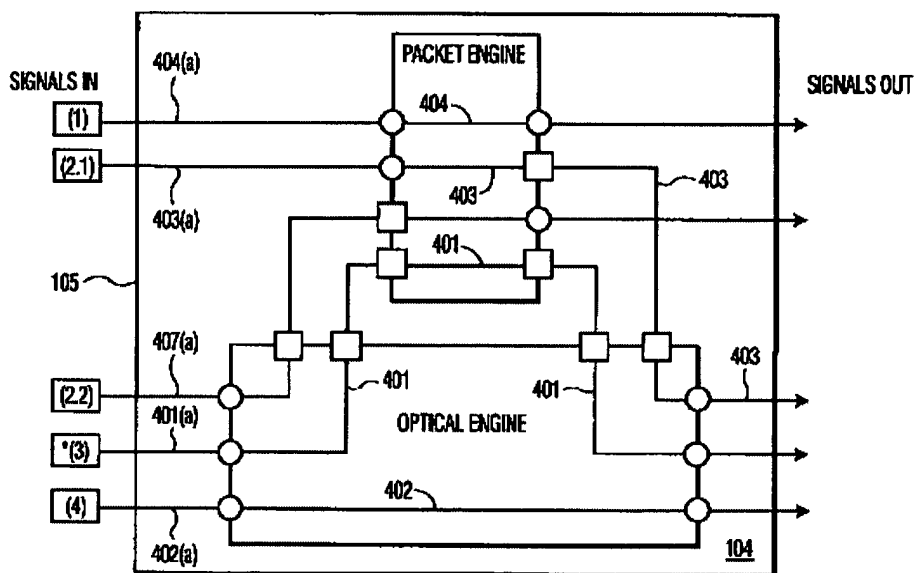
14. As to the optical signal to be outputted to said second optical transmission route, when said plurality of routes are set in said optical switch and a plurality of optical signals are received from said plurality of first different optical transmission routes, one of said optical signals is selectively outputted to said second optical transmission route. See also Figure 4, and in particular route 403.

15. Eng et al. does not specifically show plural optical switches in the switch 215. However, Eng et al. suggests that the optical switch may be comprised of three smaller switching modules (see paragraph [0011] and [0040]; Figure 5).

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16. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide plural optical switches, as taught by Eng et al. in order to allow for modular growth and thereby reduce cost of upgrades.

17. Regarding claim 3, Eng et al. does not disclose every possible transmission scheme, but shows an example 404(a) in Figure 4 where an output destination of the optical signal received from one of said plurality of first transmission routes corresponds to one of said plurality of first optical transmission routes.



Eng et al. further discloses that the control circuit (provisioning computer 155) sets the switching to cause the inputs to be directed to the desired outputs (see paragraph [0021]).

18. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set any one of the inputs from the plurality of first transmission routes to be outputted to any one of the plurality of first optical transmission routes in order to achieve efficient and direct communication from packet engine to packet engine.

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19. Regarding claim 5, Eng et al. does not specifically show plural optical switches in the switch 215. However, Eng et al. suggests that the optical switch may be comprised of three smaller switching modules (see paragraph [0011] and [0040]; Figure 5).

20. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide plural optical switches, as taught by Eng et al. in order to allow for modular growth and thereby reduce cost of upgrades.

21. Additionally, Eng et al. does not disclose every possible transmission scheme, but shows an example 407(a) and 403(a) in Figure 4, where an optical signal 407(a) received from said second optical transmission route and an optical signal 403(a) to be outputted to said second optical transmission route are routed to the different optical switches (packet engine and optical engine; or see also optical switches of optical engine in Figure 5) so as to output the optical signals to the predetermined first different optical transmission routes and receive the optical signals from the predetermined first different optical transmission routes.

22. Therefore it would have been obvious to provide the routes between the respective first and second transmission routes in order to maximize capacity or maximize efficiency of the transmission routes.

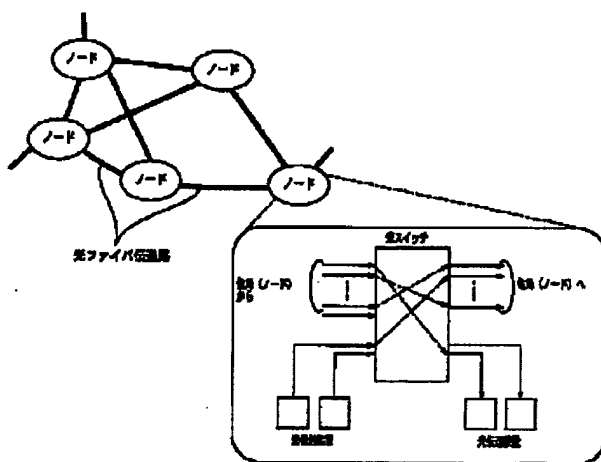
23. Regarding claim 7, Eng does not disclose every possible transmission scheme. However, as discussed previously with regards to claim 3, note example 404(a), wherein when the output destination of the optical signal received from one of said plurality of first transmission routes corresponds to one of said plurality of first optical transmission routes. Eng et al. further discloses that the control circuit (provisioning computer 155) sets the switching routes to cause the inputs to be directed to the desired outputs (see paragraph [0021]).

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24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set any one of the inputs from the plurality of first transmission routes to be outputted to any one of the plurality of first optical transmission routes in order to achieve efficient and direct communication from packet engine to packet engine.

25. **Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. in view of Asahi (JP 11-289295).** Regarding claim 12, Eng et al. discloses the claimed invention (optical switching equipment) comprising first and second interfaces, optical switches, and a control circuit as discussed above, but does not specifically disclose an optical transport network having a plurality of optical switching equipments connected with a plurality of transmission routes and for transmitting or receiving optical signals between said optical switching equipments.

26. Asahi discloses an optical transport network in Figure 6, having a plurality of optical switching equipments connected with a plurality of transmission routes and for transmitting or receiving optical signals between said optical switching equipments.



27. Eng et al. and Asahi are analogous art as pertaining to the same field of endeavor, that is nodes for optical communications.

28. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a plurality of switching equipments of Eng et al. in a transport network as shown by Asahi.

29. The motivation to do so would have been to provide communications network with the option of maximum capacity or maximum efficiency between the nodes.

30. As for the conditions of claim 12 for adding the optical signal, dropping the optical signal, and relaying the optical signal, Eng et al. does not disclose every possible transmission scheme. However Figure 4 discloses various routes wherein a signal may be added, dropped or relayed through the system from the first or second plurality of routes to the first or second plurality of routes.

31. For example, wherein the case of adding the optical signal received from said second optical transmission route into said optical transport network, the optical switching equipment operates to split said received optical signal (via 205 for example) into a plurality of optical signals from a plurality of routes (e.g. route 407(a)) set in said optical switches (via control circuit 155) to another plurality of different optical switching equipments (in other nodes) through said plurality of first different optical transmission routes, respectively. It is noted that each of the switching equipments in each of the nodes are identical, and therefore operate in the same manner.

32. Additionally, as to the optical signal to be dropped from said optical transport network to said second optical transmission route, when a plurality of optical signals are received through

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said plurality of first different optical transmission routes from another plurality of different optical switching equipments (from other nodes) respectively by setting a plurality of routes (e.g. route 403(a) via control circuit 155) in said optical switch, selecting one of said plurality of optical signals and outputting said signal to said second optical transmission route.

33. Also, in the case of relaying the optical signal inside the optical transport network, outputting the optical signal received from any one of said plurality of first transmission routes to the destination first optical transmission route through the routes (e.g. route 404(a)) set in said optical switch (via control circuit 155).

34. Therefore it would have been obvious to provide the routes between the respective first and second transmission routes in order to maximize capacity or maximize efficiency of the transmission routes.

Allowable Subject Matter

35. Claims 2, 4, 6, 8, 15 and 16 would be allowable if rewritten to overcome the objections noted above.

36. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or reasonably suggest optical switching equipment as claimed, comprising a plurality of optical selectors for receiving a plurality of optical signals from the plurality of output terminals of said optical switch, selecting any one of said plurality of optical signals, and outputting said selected signal to the second optical transmission route corresponding to said plurality of output terminals, wherein the optical selector which selects one of said plurality of optical signals and then outputs it to said second optical transmission route, as claimed in claim 2. Claims 4, 6 and 8 would be allowable as depending from claim 2.

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37. The prior art of record also does not disclose or reasonably suggest optical switching equipment as claimed, additionally comprising a plurality of optical switches for receiving a plurality of optical signals from a plurality of output terminals of said optical switch, selecting any one of said plurality of optical signals, and outputting said selected signal to the second optical transmission routes corresponding to said output terminals, as claimed in claim 15.

38. The prior art of record also does not disclose or reasonably suggest optical switching equipment as claimed, additionally comprising a plurality of optical switches for receiving a plurality of optical signals from the outputs of said plurality of second optical signal adjusters, selecting any one of said optical signals, and outputting said selected signal to said second optical transmission route, as claimed in claim 16.

Conclusion

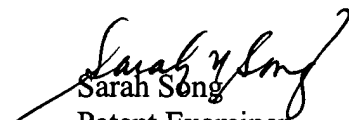
39. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sarah Song
Patent Examiner
Group Art Unit 2874